REMARKS

Claims 1-21 are presently pending in the application. Applicants amend claim 1, and add new claim 21, as listed above. Support for the amendments and the new claim can be found in the original claims and throughout specification, e.g., page 86 – 91. The application is believed to be in condition for allowance. Hence, reconsideration and allowance are respectfully requested.

Specification

In response to the objection raised to the specification, it is amended as shown above to include the serial numbers of the copending and/or issued applications to which the specification refers.

Rejections under 35 U.S.C. § 102 and 103

The Office Action rejects claims 1-20 as being anticipated, or in the alternative, as being obvious over U.S. Patent No. 6,597,691 of Anderson et al.

Independent claim 1, as amended, recites a network device comprising a plurality of ports for data ingress and egress, a plurality of mid-planes, a cross-connection subsystem connected to the ports and to at least one of the mid-planes, and a switch fabric subsystem coupled to each of the plurality of mid-planes. The cross-connection subsystem is directly connected to at least one of the mid-planes.

Anderson is directed to multi-port Fiber Channel switch network devices. With reference to FIGURES 12, 13 and 14 of Anderson, such a network device can include a plurality of ASICs, each of which includes input and output ports and a connectionless crossbar (i.e., a packet switch) for routing packets between the ports. Each ASIC is coupled to a connectionless backplane (e.g., connectionless backplane 60) that provides connections on a frame-by-frame basis. Further, all of the ASICs also connect to a connectionless serial crossbar (e.g., crossbar 270), which is also coupled to the backplane (and possibly other backplanes).

Anderson fails to teach or suggest all of the elements of the network device recited in amended claim 1, and their associated connectivity. As an initial matter, the connectionless backplanes in Anderson are distinct from the midplanes recited in claim 1. The mid-planes are printed circuit boards into which various functional circuit boards of the network device may be plugged and further include electrical connections through which the functional circuit boards can communicate. In other words, the mid-planes are in effect physical layer switches whereas the connectionless backplane of Anderson is understood to be a router subsystem that can provide connections on a *frame-by-frame* basis. Further, amended claim 1 recites that the network device includes a cross-connection subsystem that is connected *directly* to one of the midplanes. Even if one assumes that the connectionless backplane in Anderson corresponds to a mid-plane recited in claim 1, it is not *directly* connected to a cross-connection subsystem that functions as a *physical layer switch*. In particular, the connectionless crossbar of each ASIC in not directly coupled to the connectionless backplane, but is rather connected to it via a plurality of ports. Further, the connectionless crossbar of each ASIC is understood to be a packet switch and not a physical layer switch. Likewise, the connectionless serial crossbar is not a physical layer switch.

Accordingly, Anderson does not teach the salient structural features of claim 1 and their associated advantages. For example, Applicants note that combining both physical layer switch/outer subsystems and upper layer switch/router subsystems in one network device allows providing intelligent layer 1 switching. *See*, e.g., specification, page 90. Further, the use of the mid-planes, in conjunction with the other elements, can allow providing a compact network device with high capacity multi-layer switching that can fit in a single telco rack.

Hence, claim 1, and claims 2-16 that depend either directly or indirectly on claim 1, distinguish patentably over Anderson.

Independent claim 17 recites a network device comprising a first mid-plane, a second mid-plane, and a switch fabric card coupled to the first mid-plane and the second mid-plane. Further, a first cross-connection card is connected to the first mid-plane, a first port card, which functions as a physical layer switch, is connected to the first mid-plane and coupled to the first cross-connection card through the first mid-plane. The device further includes a first forwarding

card that is connected to the first mid-plane and is coupled to the first cross-connection subsystem and the switch fabric subsystem through the first mid-plane.

Anderson does not teach all of the elements of claim 17. In particular, even if one assumes, as the Examiner does, that the connectionless backplanes of Anderson correspond to the midplanes recited in claim 17 (an incorrect assumption as discussed in detail above), Anderson does not teach other features of claim 17. For example, even if one assumes that a crossbar packet switch within each ASIC and the connectionless crossbar of Anderson correspond, respectively, to the cross-connection card and one of a midplane recited in claim 17, they do not exhibit the connectivity recited in claim 17.

More specifically, whereas claim 17 recites that the cross-connection card is *directly* connected to the first midplane, the crossbar packet switch of each ASIC is connected via Fports of the ASIC, and not directly, to the connectionless backplane. Further, if one assumes that an Fport of the ASIC in Anderson corresponds to the forwarding card recited in claim 17 (as the Examiner assumes), Anderson does not show a port card that functions as a physical layer switch and that is connected to a midplane, and through that midplane, to a cross-connection card. In other words, an Fport of an ASIC of Anderson cannot be identified both as a physical layer switch such that it would correspond to the port card recited in claim 17 and also as an upper layer switch so as it would correspond to a forwarding card, which can parse information within a packet to determine how to route that packet (See, e.g., pages 78-81 of the specifiction). Furthermore, the Fports of an ASIC in Anderson are coupled directly to the connectionless crossbar within the ASIC, and not through one of the connectionless backplanes.

Hence, similar to claim 1, claim 17 also distinguishes patentably over Anderson. Further, claims 18-20 depend, either directly or indirectly, on claim 17, and hence are patentable as well.

New Claim

New claim 21 recites a network device that includes a plurality of ports for data ingress and egress, and a plurality of mid-planes. A cross-connection subsystem is connected to the

ports and to at least one of the mid-planes. The device further includes a plurality of forwarding cards and a switch fabric subsystem coupled to each of the plurality of mid-planes.

Support for claim 21 can be found in the original claims and throughout the remainder of the specification. Thus, no new matter is added. The arguments presented above apply to establish that claim 21 is patentable over the cited art.

Conclusion

In view of the above amendment and remarks, Applicant respectfully request reconsideration and allowance of the application. If there are any remaining issues, the Examiner is invited to call the undersigned at 617-439-2514.

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Respectfully submitted,

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